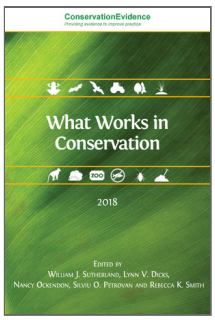

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8.2. Threat: Agriculture and aquaculture

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8.2 Threat: Agriculture and aquaculture

Based on the collated evidence, what is the current assessment of the effectiveness of interventions for managing the impacts of agriculture and aquaculture in shrublands and heathlands?	
Beneficial	• Reduce number of livestock
Likely to be beneficial	• Use fences to exclude livestock from shrublands
Unknown effectiveness (limited evidence)	• Change type of livestock • Shorten the period in which livestock can graze

Beneficial

Reduce number of livestock

Two before-and-after trials in the UK and South Africa and one replicated, controlled study in the UK found that reducing or stopping grazing increased the abundance or cover of shrubs. Two site comparison studies in the UK found that cover of common heather declined in sites with high livestock density, but increased in sites with low livestock density. One site comparison study in the Netherlands found that dwarf shrub cover was higher in ungrazed sites. One replicated, randomized, before-and-after study in Spain found that reducing grazing increased the cover of western gorse. One randomized, controlled trial and one before-and-after trial in the USA found that stopping grazing did not increase shrub abundance. One site comparison study in France found that ungrazed sites had higher cover

of ericaceous shrubs, but lower cover of non-ericaceous shrubs than grazed sites. One site comparison study in the UK found that reducing grazing had mixed effects on shrub cover. One replicated, randomized, controlled study in the UK found that reducing grazing increased vegetation height. However, one replicated, controlled, paired, site comparison study in the UK found that reducing grazing led to a reduction in the height of heather plants. Two site comparison studies in France and the Netherlands found that ungrazed sites had a lower number of plant species than grazed sites. One replicated, controlled, paired, site comparison study in Namibia and South Africa found that reducing livestock numbers increased plant cover and the number of plant species. One controlled study in Israel found that reducing grazing increased plant biomass. However, one randomized, site comparison on the island of Gomera, Spain found that reducing grazing did not increase plant cover and one replicated, controlled study in the UK found that the number of plant species did not change . One replicated, controlled study in the UK found no change in the cover of rush or herbaceous species as a result of a reduction in grazing. Two site comparison studies in France and the Netherlands found that grass cover and sedge cover were lower in ungrazed sites than in grazed sites. One randomized, controlled study in the USA found a mixed effect of reducing grazing on grass cover. *Assessment: Beneficial (effectiveness 65%, certainty 70%, harms 10%).*

https://www.conservationevidence.com/actions/1607

Likely to be beneficial

Use fences to exclude livestock from shrublands

Two replicated, controlled, randomized studies (one of which was also a before-and-after trial) and one controlled before-and-after trial in the UK found that using fences to exclude livestock increased shrub cover or abundance. Two replicated, controlled, randomized studies in Germany and the UK found that using fences increased shrub biomass or the biomass and height of individual heather plants. Two controlled studies (one of which was a before-and-after study) in Denmark and the UK found that heather presence or cover was higher in fenced areas that in areas that were not fenced. However, one site comparison study in the USA found that using fences led to decreased cover of woody plants. Three replicated, controlled

studies (one of which was a before and after study) in the USA and the UK found that fencing either had a mixed effect on shrub cover or did not alter shrub cover. One randomized, replicated, controlled, paired study in the UK found that using fences to exclude livestock did not alter the number of plant species, but did increase vegetation height and biomass. One controlled, before-and-after study in the UK found that fenced areas had lower species richness than unfenced areas. One randomized, replicated, controlled, before-and-after trial in the UK and one site comparison study in the USA found that using fences to exclude livestock led to a decline in grass cover. However, four controlled studies (one of which a before-and-after trial) in the USA, the UK, and Finland found that using fences did not alter cover of grass species. One site comparison study in the USA and one replicated, controlled study in the UK recorded an increase in grass cover. One controlled study in Finland found that using fences to exclude livestock did not alter the abundance of herb species and one site comparison in the USA found no difference in forb cover between fenced and unfenced areas. One replicated, controlled study in the USA found fencing had a mixed effect on herb cover. A*ssessment: likely to be beneficial (effectiveness 51%; certainty 60%; harms 10%).*

https://www.conservationevidence.com/actions/1545

Unknown effectiveness (limited evidence)

Change type of livestock

Two replicated, before-and-after studies and one controlled study in Spain and the UK found changing the type of livestock led to mixed effects on shrub cover. However, in two of these studies changing the type of livestock reduced the cover of herbaceous species. One replicated, controlled, before-and-after study in the UK found that grazing with both cattle and sheep, as opposed to grazing with sheep, reduced cover of purple moor grass, but had no effect on four other plant species. A*ssessment: unknown effectiveness (effectiveness 40%; certainty 29%; harms 5%).*

https://www.conservationevidence.com/actions/1608

Shorten the period during which livestock can graze

One replicated, controlled, before-and-after study in the UK found that shortening the period in which livestock can graze had mixed effects on heather, bilberry, crowberry, and grass cover. One replicated, randomized, controlled study in the UK found that grazing in only winter or summer did not affect the heather or grass height compared to year-round grazing. *Assessment: unknown effectiveness (effectiveness 32%; certainty 20%; harms 2%).*

https://www.conservationevidence.com/actions/1609